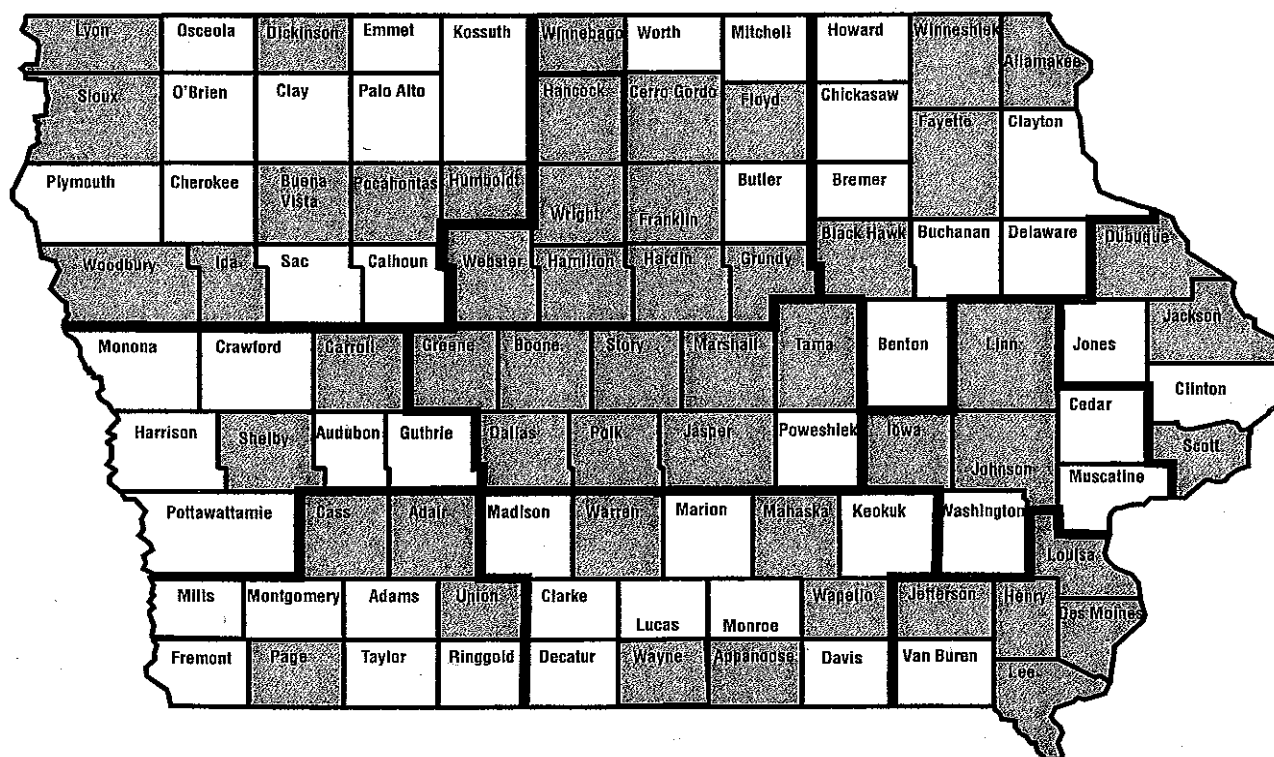


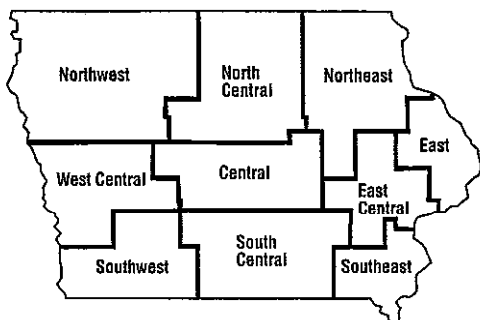
Institute for Physical Research and Technology

IPRT WORKS for Iowa



■ = Counties with IPRT interactions/assistance in 2000

IOWA STATE UNIVERSITY



FY00

The Institute for Physical Research and Technology assisted over 175 companies/others in 52 Iowa counties, covering every region of the state. This assistance ranged from initial contact and referral to full research projects. This listing is incomplete as many companies request their contact remain confidential.

NORTHWEST

George

Sudenga Industries, Inc.

Humboldt

Hadar Manufacturing, Inc.

Ida Grove

GOMACO

Laurens

Positech

Milford

Cycle Country Accessories

Sergeant Bluff

Kind & Knox Gelatine, Inc.

Sioux Center

VBS, Inc.

Sioux City

Schaeff, Inc.

Spirit Lake

Tri States Grain Conditioning

Storm Lake

Merrill Manufacturing Co.

Nature's Furnace, Inc.

Thor

Fischer Enterprises

NORTH CENTRAL

Blairsburg

Chamness Technology, Inc.

Charles City

Salsbury Chemicals

Clarion

Hagie Manufacturing Co.

Clear Lake

Technology Labs, Inc.

Conrad

Ritchie Industries

Dayton

DeKalb

Eagle Grove

M & M Livestock Products Co.

Forest City

Innovative Retail Solutions

Ron Holland House Moving

Winnebago Industries, Inc.

Fort Dodge

Celotex Corp.

Iowa National Guard

Josephson Manufacturing Co.

United States Gypsum Co.

Garner

Iowa Mold Tooling Co.

Hampton

Seabee Corp.

Seabee Foundry

Hubbard

City of Hubbard

Jewell

Arko Laboratories Ltd., Inc.

Klemme

BMD Co. Inc.

Mason City

IMI Cornelius, Inc.

Sheffield

Sukup Manufacturing Co.

Webster City

Frigidaire Co. Laundry Products

Land O'Lakes

Swine Graphics Enterprises

NORTHEAST

Cedar Falls

Iowa Laser Technology, Inc.

Viking Pump, Inc.

Decorah

Deco Products Co.

Oelwein

Heartland Resource Technologies, Inc.

Postville

Industrial Laminates/Norplex, Inc.

Waterloo

Deere & Co., Waterloo

OMJC Signal, Inc.

WEST CENTRAL

Carroll

Delavan-Carroll, Inc.

Harlan

BioMass Agri-Products, L.L.C.

Jacobs Corp.

Ralston

West Central Cooperative

Templeton

Paq-Cell, Inc.

CENTRAL

Adel

Thermal Dynamics

Albion

DONCO Air Products

Ames

3M Corp.

8VA Corp.

Advanced Analytical Technologies Inc.

Agricultural Research Service

Ames Municipal Electric System

Animal and Plant Health Inspection Service

Apogee Corp.

Bill Larsen, P.C.

Carbon Energy Technology, Inc.

City of Ames

CombiSep, Inc.

Delta-Tie, Inc.

Engineering Animation Inc.

ETREMA Products, Inc.

EXSeed Genetics

L. L. C.

Gilger Design

Global Reach Internet Productions

Innovative Materials Testing Tech.

Iowa Dept. of Transportation

Iowa Energy Center Metabolic Technologies, Inc.

MTEC

National Animal

Disease Center

National Veterinary

Services Lab

Nitro Cream

Novartis

Proliant, Inc.

Rocket Chips, Inc.

Sauer-Danfoss

Stine Biotechnologies

Universal Harvester Co.

US Filter

VISTA R & D Co.

Yarn Tree

Ankeny

Deere & Co.

Monsanto Co.

Boone

Archway Cookie Co.

Iowa Army National Guard

Iowa Thin Film Technologies

Oren Consulting

Services

Percival Scientific

Clive

CST

Des Moines

Agribusiness Association of Iowa

Dels Machining

Des Moines Water Works

Diamond Animal Health, Inc.

EMCO Enterprises, Inc.

Hirsch Industries

Iowa Air National Guard

Iowa Changers, Inc.

Iowa Dept. of Natural Resources

John Deere Des Moines Works

Phytodyne, Inc.

Pioneer Hi-Bred International, Inc.

Team Services

Townsend Engineering Co.

Grimes

Powell Consultants

Huxley

ETC

Jefferson

American Athletic, Inc.

MobileStor

Johnston

Genetic Enterprises

International

Pioneer Hi-Bred International, Inc.

Madrid

Continental Laboratories

Marshalltown

Fisher Controls International, Inc.

Kiowa Corp.

Lennox Industries, Inc.

MechDyne Corp.

Nevada

The Anderson Group, Inc.

Newton

Maytag Corp.

Perry

Wiese Corp.

Toledo

Pioneer Hi-Bred International, Inc.

Urbandale

Iowa Soybean Promotion Board

VP Engineering, Inc.

EAST CENTRAL

Amana

Amana Appliances

Kloubec Fish Farms

IPRT WORKS for Iowa

IPRT pursues research and technology development in the physical and engineering sciences that lead to economic development in Iowa.

Cedar Rapids

Alliant Power
Computing Solutions, Inc.
Laboratory Services, City of
Cedar Rapids
Martin C. Robinson, P.C.
PMX Industries, Inc.
Quaker Oats Co.
Rockwell Collins
Silicon Graphics, Inc.
Square D Co.
Water Pollution Control,
City of Cedar Rapids

Coralville

Quorum Sciences, Inc.
Rockwell Collins
Iowa City
Advanced Monitoring
Devices
Candleworks
Goldfinch Diagnostics, Inc.

Jader, L.C.

Radix Corp.

Torus Technologies

University of Iowa

Muscatine

Grain Processing Corp.
HON Industries, Inc.

North Liberty

Centro, Inc.

EAST

Blue Grass

Solution Innovations, LLC

Davenport

Aluminum Company of
America (Alcoa)

Blue Wave Ultrasonics

CASE Corp.

Leiner Davis Gelatin

Marthens Co.

Dubuque

Deere & Co.

Preston

Plastics Unlimited

Princeton

Johnson Manufacturing Co.

Walcott

Midfield Pattern Corp.

SOUTHWEST

Adair

Schafer Systems, Inc.

Clarinda

Lisle Corp.

Creston

Wellman Dynamics

Griswold

Yellow Jacket Manufacturing

SOUTH CENTRAL

Agency

Bonser's Pasta Products

Centerville

Chariton Valley Resource

Conservation & Development

Young Radiator

Corydon

Shivvers Manufacturing

Cumming

Michael Couch, Inc.

Eddyville

Ajinomoto USA, Inc.

Heartland Lysine\Ajinomoto

Oskaloosa

North American Marketing Co.

Ottumwa

JoLua Co.

SOUTHEAST

Burlington

Flexible Industries

Winegard Co.

Fairfield

Iowa Wind Energy Institute

Ft. Madison

Ft. Madison Waxworks

Wolf Packaging, Inc.

Mount Pleasant

Heatilator, Inc.

Wapello

Grimm Brothers

Wapello Fabrications

EMCO Specialties, Des Moines

Scientists from the Iowa Companies Assistance Program helped EMCO Specialties, a manufacturer of storm doors, maintain its product quality. The company needed to know the composition of surface coatings and percentage of brass alloy in brass handle sets for its doors. It purchases the handles from different suppliers and wanted to understand why one supplier's handles withstand corrosion better than another's.

EMCO guarantees the brass and incurs a significant cost if it has to be replaced. To help the company, ICAP did extensive studies of the two different handle sets. EMCO reports that ICAP's work provided it with significant information about the handle sets and it was able to take corrective action as a result.

OMJC Signal Inc., Waterloo

OMJC Signal Inc., supplier of traffic signal equipment, came to IPRT's Iowa Companies Assistance Program with a problem and went away with what is essentially a new product. Lyle Stout, vice president of OMJC, reports that ICAP scientists were prompt, courteous and competent. "Who could ask for more?" he said, adding that such services help promote growth in Iowa businesses.

The company needed ICAP's help to determine if a new configuration of a portable traffic signal could withstand wind gusts of 80 mph. Through ICAP, scientists in IPRT's Ames Laboratory performed a stress analysis of the pole. The evaluation was done using a computer-based technique in which Ames Lab has extensive experience. This analysis showed that the pole could indeed withstand the wind load, ensuring OMJC that the \$16,000 product met its customer's specifications. Stout said his company is now promoting this new application for its portable traffic signals and that sales are on the rise as a result.

Frigidaire Laundry Products, Webster City

IPRT's Iowa Companies Assistance Program has helped Frigidaire Laundry Products better understand the noise generated by its washing machines. This data is aimed at improving the quality of Frigidaire products.

To provide this information, ICAP brought in Adin Mann, an Iowa State University engineering professor to study vibrations in a Frigidaire washing machine. "The information was very useful," said Ali Zarghami, manager of product performance evaluation at Frigidaire. With respect to Mann's efforts, Zarghami said, "He went well beyond our expectations."

The testing was done in ISU's Acoustics Laboratory, whose specialties include locating noise sources in complex machinery. The extensive study focused on measuring vibrations in the machine as it ran through two different wash cycles. The report also made recommendations for controlling the noise.

Chariton Valley RC&D, Centerville

Finding new uses for switchgrass and other "biomass" materials is the goal of a project involving IPRT's Center for Advanced Technology Development, Chariton Valley Resource Conservation and Development, and Prairie Land Bio Products. In particular, the effort is evaluating the use of biomass as an additive to plastic resins. CATD is helping coordinate efforts, fund the project and bring in an Iowa State University forestry professor to perform research.

The three-year effort is aimed at commercializing this technology, which could lower the cost of molded products or change the mechanical properties of molded products. Jim Cooper, coordinator of Chariton Valley RC&D, said that CATD and ISU researchers have been very helpful in this project, which has both environmental and economic benefits.

Agricultural biomass, including switchgrass, wood, corn and soybeans, provides fiber that can be blended into the plastic resins. The resulting material should have advantages including durability and cost over traditional wood or plastics for use in fences, pallets and other applications. The researchers are investigating the different variables involved in producing such materials. The team is also working with plastics users in Iowa to identify specific materials that fulfill their needs. In addition, a plastics

extrusion machine will be installed at the Iowa Energy Center to manufacture samples as part of the research.

Solution Innovations, LLC, Blue Grass

IPRT's Iowa Demonstration Laboratory and the Center for Advanced Technology Development are helping Solution Innovations, LLC develop a new product. If it works, the product could help avoid damage to transfer pumps and storage tanks that could occur if discharge tubes in tanker trucks run dry.

The company first contacted IDL seeking a way to detect if a discharge tube was filled with fluid. IDL responded by demonstrating how ultrasound energy could be used to monitor the presence of fluid in the tube. IDL scientists also worked with the company to develop a prototype system for a potential new product. The prototype's electronics could not be made to operate from a 12-volt power supply, however, so the project was referred to CATD. CATD is now helping to fund an effort to develop the necessary electronics at ISU's engineering services.

Lisle Corp., Clarinda

To help the Lisle Corp. ensure a safe workplace, scientists at IPRT's Iowa Companies Assistance Program provided information on methods and techniques for detection of lead in rolled steels. ICAP also provided the company, a manufacturer of specialty tools for the automotive industry, with an OSHA evaluation showing the effectiveness of test kits for detecting lead. Using this information, the company contacted a commercial supplier of detection kits. Dennis Graham of Lisle reported that ICAP was very helpful.

Iowa Thin Film Technologies, Inc., Boone

Iowa Thin Film Technologies, Inc. is a fast-growing maker of solar cells, which turn light energy from the sun or other sources into electricity. IPRT's Microelectronics Research Center helped the company get its start in the 1980s and worked with it to build its pilot facility in 1989. Today, MRC and ITFT continue to collaborate on several projects aimed at helping the company maintain its lead in the solar-cell market. IPRT's Center for Advanced Technology Development is helping to fund some of this research. "We anticipate the relationship to continue indefinitely," said Derrick Grimmer, one of the company's founders. Commenting on IPRT resources made available to companies such as ITFT, Grimmer said, "It's good for Iowa business."

IPRT FY00 Funds

State of Iowa Special Purpose Funds 4.6 M

Center and Commercialization Project Support 3,817,200

Faculty and Graduate Assistant Salaries	783,700
Professional & Scientific Salaries	1,383,000
General Services Salaries	395,100
Hourly Wages	84,200
Materials, Supplies, & Services	762,400
Equipment	408,800

Industrial Outreach Program Support 754,300

Iowa Industrial Incentive Program (IIP)
Iowa Demonstration Laboratory for NDE Applications (IDL)
Iowa Companies Assistance Program (ICAP)

	<u>IIP</u>	<u>IDL</u>	<u>ICAP</u>
Faculty and Graduate Assistant Salaries	69,000		
Professional & Scientific Salaries	81,600	149,200	106,500
General Services Salaries	4,500		2,000
Hourly Wages	29,100	17,400	
Materials, Supplies, & Services	110,600	57,600	88,800
Equipment	<u>23,600</u>	<u>14,400</u>	
Subtotal	318,400	238,600	197,300

Iowa State University Allocation 2.1 M

(Salaries, Materials and Supplies, Equipment)

Private Industry Project Funds 2.4 M

Federal Project Funds 39.0 M

Department of Commerce	217,200
Department of Defense	297,100
Department of Energy	27,474,100
Department of Transportation	6,713,100
HHS	575,100
NASA	402,900
National Science Foundation	1,515,200
USDA	875,800
Various Federal Agencies	895,600

TOTAL 48.1 M

IPRT was established in 1987 to pursue research and technology development in the physical and engineering sciences that lead to economic development with industrial involvement. This is accomplished through a variety of research, outreach and education activities and programs at the IPRT centers, linking the university research community to industry and government.

Iowa Industrial Incentive Program

Leverages State Investment — During IIP's eight years, IPRT has leveraged every State of Iowa dollar in this program to an average research value of \$4.00. The following table summarizes all program investments.

Year	Number of Projects ¹	IIP Funds* ²	Industry Funds*	University & Other Funds*	IMEP* ³	Totals*
2000	36	426.9	887.8	522.3	N/A	1,836.9
1999	29	350.2	603.7	382.2	N/A	1,336.1
1993 ⁴	10	282.5	500.6	136.8	N/A	920.0
1993–2000	<u>221</u>	<u>2,671.6</u>	<u>4,173.4</u>	<u>3,158.4</u>	<u>683.0</u>	<u>10,686.4</u>

Average	28	334.0	521.7	394.8	N/A	1,335.8
---------	----	-------	-------	-------	-----	---------

* Dollars in thousands

1. At any given point during a year, staff from IPRT's Center for Advanced Technology Development (CATD) will have 25–30 projects under development. CATD's tech transfer associates work with Iowa industry to define research needs and match those needs with university resources. The reported number reflects the number of discussions that ended in contract research agreements with Iowa industry and businesses. Discussions that do not end in research contracts are often referred to IPRT's other industrial outreach programs — Iowa Companies Assistance Program and the Iowa Demonstration Laboratory for Nondestructive Evaluation — for short-term, no-cost technical assistance.
2. The figure in this column reflects the allowance of carryover funds for one fiscal year.
3. The Iowa Manufacturing Extension Partnership (IMEP), formerly called the Iowa Manufacturing Technology Center, is a U.S. Department of Commerce NIST program with more than 70 programs across the nation. From 1994 through 1996, IMEP directed funds into IIP industrial research projects, but since 1998, IMEP has not funded these projects.
4. Initiating year, shown for reference.

For more information, contact:

Institute for Physical Research and Technology
Director's Office
311 TASF
Ames, IA 50011-3020
(515) 294-8902
FAX: (515) 294-4456
<http://www.iprt.iastate.edu>
E-mail: iprtinfo@iastate.edu